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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,152	06/01/2006	Gereon Vogtmeier	PHIDE030413US	2823
38107 7590 02/21/2008 PHILIPS INTELLECTUAL PROPERTY & STANDARDS 595 MINER ROAD CLEVELAND, OH 44143				
EXAMINER KIM, KIIHO				
ART UNIT 2884		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/596,152

**Applicant(s)**

VOGTMEIER ET AL.

**Examiner**

KIHIO KIM

**Art Unit**

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/1/2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CI/CD)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 6/1/2006.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention: "variable shielding effectiveness" (on lines 3 – 4 of p. 2) is not clear to ordinary artisans what this "variable shielding effectiveness" means or how it is defined.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 3, 5 – 6, and 8 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine *et al.* (US 2003/00234363 A1, hereunder Sekine) in view of Kajiwara *et al.* (cited as No. 1 in IDS filed on June 1, 2006 in the US published application section, hereunder Kajiwara).

#### **Regarding independent claim 1 and dependent claims 2:**

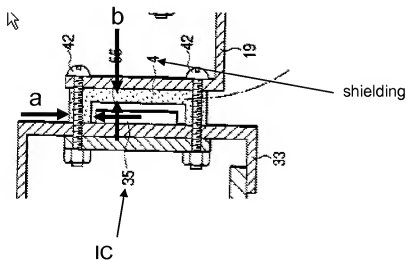
Sekine teaches x-ray detector (Fig. 14) with detector elements arranged in a layer (as illustrated in Fig. 14), wherein every detector element comprises a sensor unit

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(photodiode array 33; on line 3 in paragraph [0086]) and a processing circuit (wiring 38 or terminal 36 on line 7 in paragraph [0086]) coupled thereto

However, Sekine fails to teach wherein a shielding of variable shielding effectiveness is disposed in front of the processing circuit.

Kajiware teaches wherein a shielding (radiation shielding members 4 in Fig. 1; on line 6 in paragraph [0055]) of variable shielding effectiveness (In paragraph [0027], Kajiware discloses the radiation shielding members are designed so as to have a thickness such that they provides sufficient shielding to block the radiation from reaching the processing unit. Also, Kajiware teaches a variable shielding effectiveness by showing two different thicknesses (As indicated by different thicknesses "a" and "b" of 4 in Fig. 12 below, Kajiware teaches making a shield having different thickness. And therefore, it is understood as obvious that when the teaching of Sekine is modified by Kajiware, variable shield effective is incorporated in order to make a stackable detector module.) is disposed in front of the processing circuit (as illustrated in Fig. 1).



It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the x-ray detector of Sekine with the shielding as taught by Kajiware in order to protect the processing circuit.

**Regarding dependent claim 3**, Sekine teaches x-ray detector, wherein a scintillator unit (34 in Fig. 14) is disposed in front of each sensor unit (as illustrated in Fig. 14).

**Regarding dependent claim 5**, when modified by Kajiware, Sekine teaches x-ray detector, wherein the shielding is formed as a section.

**Regarding dependent claims 6 and 8:**

The teaching of Sekine modified by Kajiware has been discussed above.

Sekine modified by Kajiware fails to teach wherein the section comprises a spatially shaped strip.

As illustrated in Fig. 1 Kajiware teaches x-ray detector, wherein the section comprises a spatially shaped strip (trapezoidal, since the shielding members 4 is shown as rectangular which is four-sided).

It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the x-ray detector of Sekine modified by Kajiware with the shielding as taught by Kajiware in order to protect the processing circuit.

**Regarding dependent claim 9:**

The teaching of Sekine modified by Kajiware has been discussed above.

Sekine modified by Kajiware fails to teach wherein materials of the shielding contains at least one of the following listed in claim 9.

Kajiware teaches x-ray detector, wherein material of the shielding contains Pb (in paragraph [0068]).

It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the x-ray detector of Sekine modified by Kajiware with the shielding as taught by Kajiware in order to protect the processing circuit.

**Regarding dependent claim 10:**

The teaching of Sekine modified by Kajiware has been discussed above.

Sekine modified by Kajiware fails to teach wherein said material is embedded in an epoxy-resin carrier.

As disclosed in paragraph [0071] Kajiware teaches x-ray detector, wherein said material is embedded in an epoxy-resin (binding agent 53 in Fig. 3D; see paragraph [0099] for epoxy resin.) carrier.

It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the x-ray detector of Sekine modified by Kajiware with the shielding as taught by Kajiware in order to protect the processing circuit.

**Regarding dependent claim 11:**

Sekine teaches an x-ray in Fig. 14 that the sensor units and the processing circuits are arranged in a common layer.

3. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine modified by Kajiwara as applied to claim 3 above, and further in view of Tsunota *et al.* (cited as No. 6 in IDS filed on June 1, 2006 in the US patent section, hereunder Tsunota.)

**Regarding dependent claim 4:**

The teaching of Kajiwara has been discussed above.

Kajiwara teaches a shielding in front of a processing unit as discussed above. However, Sekine modified by Kajiwara fails to teach x-ray detector, wherein the scintillator unit are arranged in a gapless way in a common layer.

Tsunota teaches an x-ray detector having a shielding between scintillators as shown in Fig. 1 described in Col. 2, lines 44 – 49.

It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the x-ray detector of Sekine modified Kajiwara with the shielding elements as taught by Tsunota such that the scintillator and the combined shielding of Kajiwara and Tsunota are arranged in a gapless way in a common layer in order to prevent cross talks as disclosed in Col. 1 line 37 of Tsunota as well as to protect the processing unit.

**Regarding dependent claim 7:**

The teaching of Sekine modified by Kajiwara has been discussed.

As discussed above, Kajiwara teaches a shielding in front of a processing circuit to protect the processing circuit.

Sekine modified by Kajiwara fails to teach the section of the shielding as L-shaped.

As discussed above, Tsunota teaches a shielding between the neighboring scintillators to prevent cross talking.

It would have been obvious to a person having ordinary skill in the time of the claimed invention was made to modify the shielding of Sekine modified by Kajiwara with the shielding as taught by Tsunota such as to have L-shaped in order to prevent cross talking as well as protecting the processing circuit.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine in view of Tsunota.

**Regarding independent claim 12:**

Sekine teaches x-ray detector (Fig. 14) with detector elements arranged in a layer, comprising a layer of scintillator units (34) disposed in front of a layer of sensor units (photodiode array 33 in Fig. 14).

Sekine fails to teach the scintillator units being separated from each other by a shielding that has a high shielding effectiveness with respect to X-rays and a high reflectivity with respect to photons produced in the scintillator units.

Tsunota teaches the scintillator units being separated from each other by a shielding that has a high shielding effectiveness (as Tables 1 and 2 illustrates for x-ray shielding rate) with respect to X-rays and a high reflectivity (as indicated by light reflectance in Tables 1 and 2) with respect to photons produced in the scintillator units.

It would have been obvious to a person having ordinary skill in the art at the time of the claimed invention was made to modify the x-ray detector of Sekine with the scintillator units being separated by a shielding as taught by Tsunota in order to prevent cross talking.



***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Homme *et al.* (US 2003/0116715 A1) teaches a radiation detector and method of producing it.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIHU KIM whose telephone number is (571)270-1628. The examiner can normally be reached on Monday - Friday 8:00 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. K./

Examiner, Art Unit 2884

/David P. Porta/

Supervisory Patent Examiner, Art Unit 2884